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July 29, 1993

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Ms. Donna R. Searcy Secretary, Federal Communications Commission Washington, D.C. 20554 PEDERAL COMMUNICATIONS COMMISSION OFFICE OF THE SECRETARY

Re: Amendment of Part 90 of the Commission's Rules to Adopt Regulations for Automatic Vehicle Monitoring Systems

PR Docket No. 93-61

Dear Ms. Searcy:

Enclosed for filing in the above-referenced proceeding are the Reply Comments of the United States Department of Transportation. For the convenience of the Commission, nine copies are included in addition to the original. The Department also intends to serve copies of the instant submission on all participants in this proceeding.

Respectfully submitted,

Paul Samuel Smith

Trial Attorney

Enclosures

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BEFORE THE FEDERAL COMMUNICATIONS COMMISSION WASHINGTON, D.C.

UFFICE OF THE SECRETARY

In the Matter of:)		
)		
The Proposed Amendment of)	PR Docket 93-	61
Part 90 of the Commission's Rules)		
to Adopt Regulations for Automatic)		
Vehicle Monitoring Systems)		

REPLY COMMENTS OF THE UNITED STATES DEPARTMENT OF TRANSPORTATION

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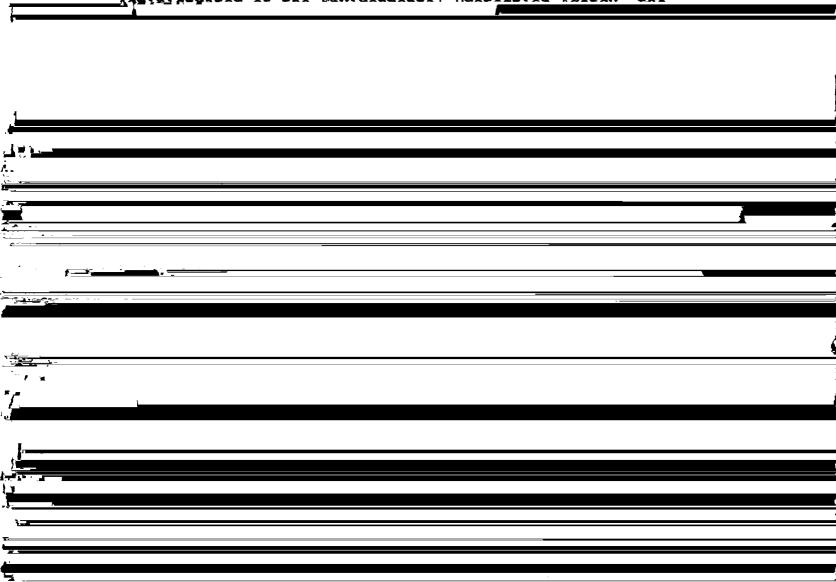
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where permanent rules will further the public interest in these systems.

The Commission has also acknowledged that AVM systems are likely to constitute an important component of Intelligent Vehicle-Highway Systems ("IVHS"). NPRM at 1. Because the components of IVHS depend on communication with moving vehicles, spectrum support in appropriate frequency bands is critical to their successful development. The United States Department of Transportation ("Department" or

note). Within the DOT, the Federal Highway Administration ("FHWA") is the lead agency for the promotion and deployment of IVHS in the United States. The FHWA has established an IVHS office to coordinate the Department's IVHS implementation efforts.

The Congress has specifically provided that, "As appropriate, in carrying out the [IVHS] program . . . , the Secretary shall consult with the Secretary of Commerce, the



stated goals of the IVHS Program include the following:

- (1) the widespread implementation of intelligent vehicle-highway systems to enhance the capacity, efficiency, and safety of the Federal-aid highway system and to serve as an alternative to additional physical capacity of the Federal-aid highway system;
- (2) the enhancement, through more efficient use of the Federal-aid highway system, of the efforts of the several States to attain air quality goals established pursuant to the Clean Air Act;
- (3) the enhancement of safe and efficient operation of the Nation's highway systems with a particular emphasis on aspects of systems that will increase safety and identification of aspects of the system that may degrade safety;
- (4) the development and promotion of intelligent vehicle-highway systems and an intelligent vehicle-highway systems industry in the United States, using authority provided under section 307 of title 23, United States Code;
- (5) the reduction of societal, economic, and environmental costs associated with traffic congestion;
- (6) the enhancement of United States industrial and economic competitiveness and productivity by improving the free flow of people and commerce and by establishing a

significant United States presence in an emerging field of technology;

- (7) the development of a technology base for intelligent vehicle-highway systems and the establishment of the capability to perform demonstration experiments, using existing national laboratory capabilities where appropriate; and
- (8) the facilitation of the transfer of transportation technology from national laboratories to the private sector. Pub. L. No. 102-240, § 6052(b)(1)-(8).

The FHWA has worked extensively with governmental agencies and the private sector in its IVHS implementation efforts. As a result of this work, the FHWA IVHS staff has developed considerable expertise in IVHS issues, including

technologies will also lead to a substantial reduction in accidents and the severity of related injuries, in fuel consumption, in exhaust emission and in delay to motorists. Furthermore, IVHS will improve the response to victims of various types of emergencies, increase roadway efficiency, and enhance international competitiveness and profitability of the commercial fleet.

The IVHS program has evolved to include six major system areas. Each of these areas focuses on different applications of IVHS technology to highway system needs. These system areas are summarized below so that the Commission can understand the breadth of the IVHS effort and the relationship of the various technologies to each other and to matters within the FCC's authority.

Advanced Traffic Management Systems ("ATMS"). These systems permit real-time adjustment of traffic control systems to adapt to traffic conditions that result from special events or incidents, and represent the "smart highway" part of IVHS. Their application in selected corridors has already reduced delay, overall travel time, and accidents. ATMS are being implemented using coordinated signal systems, video surveillance, ramp metering, automated toll collection (which depends on Automatic Vehicle Identification ("AVI") devices), and variable message signs.

The single most important component of any traffic management system is <u>surveillance</u>. The second most important component is the communication of the data obtained from that surveillance to the control center of the traffic management system. To manage traffic, the system has to know where the problems are. Both AVM and AVI systems can provide traffic management systems with important surveillance data communications and management capability.

Advanced Traveler Information Systems ("ATIS"). This component deals with the acquisition, analysis, communication, presentation, and interpretation of information in the vehicle, to assist the surface transportation user in moving between origin and destination in a way that best meets individual requirements for route, safety, efficiency, and comfort. These systems support the identification of optimal routes and, by monitoring traffic information from the ATMS, permit the real-time adjustment of routes to avoid congestion. ATIS provide safety and warning messages within vehicles, which will grow in importance as our driving population ages. Various forms of communication distribute the information to motorists and transit users.

Commercial Vehicle Operations ("CVO"). This aspect of IVHS is designed to expedite commercial deliveries, improve operational efficiency, and increase safety. CVO services ease the regulatory burdens on commercial operators and benefit the public by reducing congestion and delay. CVO capabilities include weighing commercial motor vehicles while in motion (for compliance with Federal weight limit requirements), automated toll collection, automated driver and vehicle permitting, and vehicle tracking. All of these depend on AVM and AVI communications systems. Because of the immediate economic advantages of these systems, their implementation has preceded that of other IVHS areas by several years. The availability of AVI systems to accelerate the implementation of CVO services has been due in large part to the fact that radio frequencies have been available to support them. Simple, low-cost systems have evolved that serve the needs of commercial operators and improve public safety.

Advanced Public Transportation Systems ("APTS"). APTS work in conjunction with ATMS and ATIS to provide mass transit users and operators with methods to increase ridership and efficiency and thereby lower cost. Given that IVHS alone cannot solve all transportation problems, intermodal solutions are critical. IVHS technologies can

supply riders with accurate time-of-arrival information, provide ill or injured passengers with rapid response to medical emergencies, and better inform commuters of mass transit opportunities that offer convenience and schedule reliability rivaling those of the personal automobile. As with ATMS, ATIS and CVO, APTS depend heavily on AVM and AVI communications systems.

Advanced Rural Transportation Systems ("ARTS"). ARTS are applications of IVHS technologies to the special problems associated with rural areas. For example, in the case of breakdowns, accidents and hazardous material spills, a "MAYDAY" function could use advanced technologies to automatically send for help and locate vehicles. On-board crash warning and avoidance systems can reduce the number and severity of rural accidents. IVHS can also play a role in improving mobility of rural travelers with technologies such as in-vehicle display of signs, two-way vehicle-roadside communications, systems to help improve the driver's vision during inclement or night conditions, and on-board systems to monitor the condition of the vehicle and the driver.

Advanced Vehicle Control Systems ("AVCS"). AVCS are

performance. In the future, AVCS may even relieve the driver of most routine driving tasks on designated, instrumented roadways.

II. DOT COMMENTS

As outlined above, the IVHS Program established by Congress and administered by the DOT relies heavily on emerging technologies and expanding uses of existing technologies. Increased communication of information by radio waves is critical to the success of several of the components of the overall IVHS Program now under development. Thus, the promotion of AVM and like technologies is squarely in the public interest. Upon review of the initial comments filed in this proceeding, the DOT hereby submits its reply in general support of the comments filed by the Intelligent Vehicle-Highway Society of America ("IVHS AMERICA") dated June 29, 1993.

The DOT believes that decisions by the Commission with respect to allocations in the pertinent radio frequency band (902-928 MHz) should incorporate Congress' commitment to the IVHS Program by supporting the development of IVHS

¹ IVHS AMERICA is utilized as an advisory committee by the DOT in accordance with the provisions of Pub. L. No. 102-240, § 6053(e), and the Federal Advisory Committee Act, 5 U.S.C. App. 2. <u>See</u> 44 Fed. Reg. 9,400 (1991).

technologies. The DOT generally supports the adoption of permanent spectrum allocation rules for the 902-928 MHz band by the Commission consistent with the four principles articulated in the June 29, 1993, comments of IVHS AMERICA. These four principles are --

- (1) the permanent rules should promote the deployment of AVM and AVI systems and favor the provision of IVHS services;
- (2) the permanent rules should protect existing systems;
- (3) the permanent rules should promote the expeditious deployment of AVM and AVI systems; and
- (4) the permanent rules should promote spectrum efficiency.

Set forth below are the DOT's more specific responses to the FCC's proposal and the IVHS AMERICA comments thereon.

A. New System Deployment

In its NPRM, the Commission proposes to rename the AVM service (47 C.F.R. § 90.7, Definitions) as the Location and Monitoring Service ("LMS"). NPRM at 2. The Commission further proposes to retain the current regulatory requirement that licensees covered by Part 90 of the

is granted (47 C.F.R. § 90.155). NPRM at 6. Except for local government entities, the Commission has no provision for extended construction periods for radio systems that operate on shared channels. The eight month construction and operation requirement is based on the Commission's belief that systems operating on shared spectrum do not require an extended period to construct their facilities.

Moreover, the Commission is concerned that frequencies will appear more congested than they really are because licensees do not construct but remain "active."

IVHS AMERICA urged the Commission to consider extended construction periods in special circumstances. IVHS AMERICA Comments at 19. In support of its position, IVHS AMERICA cites "the procurement process of State and local transportation authorities in coordinating the purchase and installation of ETTM [electronic toll and traffic management] systems may unavoidably consume more than the proposed eight month construction period." Id.

The DOT agrees with IVHS AMERICA that the system acquisition procedure used by State and local transportation authorities for the purchase and installation of electronic toll collection systems may consume more than the eightmonth construction period. While the DOT agrees that the Commission's current rule serves the public interest for

most purposes, the DOT also believes that an exception should be provided for AVI and AVM that are part of the IVHS Program. In the DOT's view, the public interest would be better served if State and local transportation authorities are provided an extended construction schedule in which to implement systems, especially those intended to operate compatibly across multiple jurisdictions. Such an approach would be consistent with the Commission's current exception for local government entities in 47 C.F.R. § 90.155(b), and would serve the same public purposes as that provision.

B. Anticipated Demand for IVHS Services

The NPRM notes that AVM systems are currently limited to locating vehicles and to transmitting status and information related to those vehicles. NPRM at 2. The Commission believes that there is a growing demand for AVM services not only by businesses and local governments but also by individuals. See Id. at 1-2. Accordingly, the Commission proposes to expand the types of entities eligible to use AVM services. Id. at 2. As already noted, the Commission also proposes to rename AVM service as LMS service, and to define it to be the use of non-voice systems that signal the location of radio units. Id. This definition would give licensees the flexibility to use LMS systems to monitor or locate any object.

In its comments to the FCC, IVHS AMERICA noted that "AVM and AVI services offer great potential for providing infrastructure-level core IVHS information concerning traffic volume and congestion." IVHS AMERICA Comments at 10. These services could be used to greatly improve traffic management, a major objective of the IVHS Program.

In the Department's view, the primary purpose of this proceeding should be to promote the deployment of AVM and AVI services in support of the IVHS Program. The Department believes that the potential public benefits and demand for these services in furtherance of the IVHS Program support the adoption of a permanent allocation to promote IVHS services, rather than other services that do not tend to further such IVHS Program objectives as improved traffic management. Non-IVHS services, such as automatic equipment identification or personal locator services, should be considered ancillary to the primary functions being considered for allocation, and should not be considered in the allocation decision. The DOT recognizes the utility of these services, and does not object to providing non-IVHS services within AVM and AVI systems on a low priority basis. However, the FCC should be mindful that the demand for non-IVHS services in this proceeding can potentially impair the

effectiveness and timeliness of the allocation decision with respect to the more important public IVHS purposes.

C. Spectrum Efficiency

The Commission's NPRM notes that the petitioner and most commenters operating or developing wide-band pulse-ranging systems argue that current practice, which permits narrow-band systems on the same spectrum as pulse-ranging systems, is unacceptable. NPRM at 3. Although pulse-

work together to co-exist in an interference-managed environment." <u>Id.</u> IVHS AMERICA further supports a review of this allocation in six years to consider the expected evolution of AVM and AVI services and technologies over that time. <u>Id.</u>

The Department agrees with IVHS AMERICA that the Commission should incorporate flexibility within any allocation for the 902-928 MHz band involving AVM and AVI This flexibility should allow AVI systems to access unused AVM spectrum and permit AVM systems to use unused AVI frequencies. The DOT suggests that the Commission adopt inter-category sharing rules between the AVM and AVI allocations similar to those found in 47 C.F.R. § 90.621(q) governing assignments in the 806-824, 851-869, 896-901, 935-940 MHz bands. Since individual AVM services offered as a package under the wide-band proposal are independently offered in separate systems whose summed bandwidth is less than PacTel's proposed total bandwidth, the Department urges the Commission to carefully review the spectrum efficiency of proposed wide-band systems before making a decision on allocating the 902-928 MHz band.

D. State-of-the-Art Technology

The NPRM notes that the petitioner claims that wideband pulse-ranging LMS systems must be licensed on an

exclusive basis to operate effectively and to promote

to address and resolve interference issues will enhance the efficiency of usage of the 902-928 MHz band and thereby will serve the public interest." IVHS AMERICA Comments at 20-21.

The Department agrees that the public interest will be served by the adoption of rules that encourage the use of the most current technology available. In the DOT's view, the record also supports a finding that AVM services and supporting technologies are still evolving, and that the state-of-the-art and state-of-practice are likely to change considerably over the next five years. In the event the Commission decides that AVM systems are not sufficiently developed in their current state to permit sharing, the DOT urges the Commission to provide within its permanent rules the flexibility to revisit the issue of exclusivity at an appropriate time.

E. Existing Systems

Given the difficulties that wide-band pulse-ranging systems have co-existing with narrow-band systems, the Commission believes that it is preferable to require narrow-band systems to leave their current frequencies and migrate to other bands proposed for their use. The Commission proposes that licensees currently authorized to operate narrow-band systems on portions of the spectrum proposed to be allocated to wide-band system use be required to

III. CONCLUSION

The Department commends the Commission for undertaking this proceeding. Permanent rules that are sensitive to the importance of radio communication to the IVHS Program should encourage further development and implementation of IVHS technologies. Such rules should generally support the construction of systems within a reasonable time, while making due allowance for non-technical, non-commercial delays. The permanent rules should also recognize the public interest in affording primacy of consideration to IVHS services in this band.

Respectfully submitted,

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Rosalind A. Knapp

Deputy General Counsel